DETAILED ACTION

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with J. D. Harriman on December 4, 2008.

Amend the claims as follows:

Claim 1: In line 4 after the word "modified" insert the phrase "using a computing device". In line 19 after the phrase "Φ is an iso-surface;" delete the word "and". In line 20 after the phrase "d is the distance from a level set surface of said level set surface model to q" insert the word "and".

Allowable Subject Matter

Claims 1-6, 9-53 and 55 are allowed. The following is an examiner's statement of reasons for allowance:

In regards to claim 1, the prior art Whitaker et al. ("*A Framework for Level Set Segmentation of Volume Datasets*"), Breen et al. ("*3D Scan Conversion of CSG Models into Distance Volumes*"), Museth et al. ("*Level Set Surface Editing Operators*") and Mauch ("*A Fast Algorithm for Computing the Closest Point and Distance Transform*"), fail to teach or suggest defining a level set surface model having at least one deformation thereon to be modified using a

computing device; performing a level set surface editing operation on a level set surface model,

wherein said operation is defined by a level set surface editing operator and is free of edge

connectivity data and wherein said performing a level set surface editing operator is defined as a

speed function, said function comprising: a regional constraint function component; a filter

function component; a surface properties defining function component wherein said speed

function is $F(x, n, \Phi) = D_q(d)C(\gamma)G(\gamma)$, wherein $D_q(d)$ is said regional constraint function

component, $C(\gamma)$ is said filter function component, and $G(\gamma)$ is said surface properties defining

function component; γ is a local geometric surface property; q is a geometric structure; Φ is an

iso-surface; d is the distance from a level set surface of said level set surface model to q and n is

a normal of the surface at point x; wherein said operation modifies the at least one deformation

and further including resetting a volumetric representation of said level model after said step of

performing a level set surface editing operation to ensure that is approximately equal to a

shortest distance to the a zero level set in a narrow band, therefore claims 1-6, 9-53 and 55 are

allowed.

Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art patents and publications on the attached PTO-892 form pertain to level set surface deformation:

- Suri et al. U.S. Patent 6,842,638

- Tek et al. U.S. Patent 7,015,907

- Paraglos et al. U.S. Patent 7,177,471

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAID BROOME whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ulka Chauhan/   /Said Broome/

Supervisory Patent Examiner, Art Unit 2628   Examiner, Art Unit 2628